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MECHANISM FOR THE PRESSING OF RING LIKE FACES

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Fig. 1

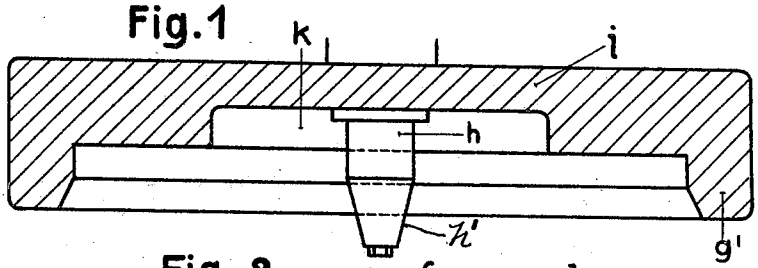


Fig. 2

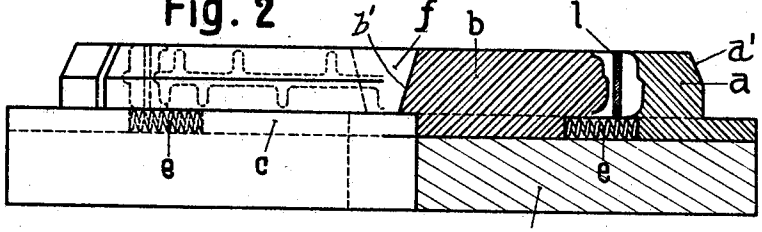
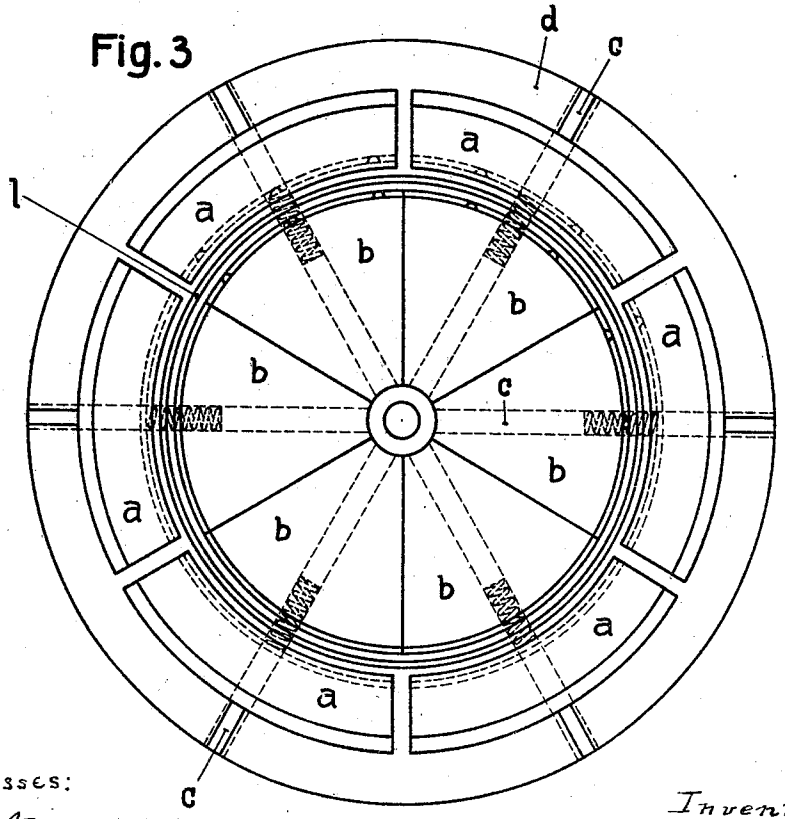


Fig. 3



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UNITED STATES PATENT OFFICE.

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MECHANISM FOR THE PRESSING OF RINGLIKE FACES.

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To all whom it may concern:

Be it known that I, HEINRICH PÖPPELMANN, a citizen of the German Republic, residing at Augsburg, Germany, have invented certain new and useful Improvements in Mechanism for the Pressing of Ringlike Faces, of which the following is a specification.

This invention relates to mechanism for pressing arcuate or ring-like faces such as, for example, the type used to emboss or indent upon arcuate or ring-like objects various characters, letters, numerals, figures and the like, particularly where the object acted upon is thin walled. In prior devices of this type a number of tools are moved radially against one face of the object to be acted upon and in embossing and indenting the characters thereon, the object must be forced against an abutment surface. During the embossing or indenting operation the object acted upon, if a ring, is easily distorted in size and after the operation has been completed, it is difficult to separate the object acted upon from the abutment surface and the tools. An object of this invention is to provide an improved and simplified mechanism for acting upon arcuate or ring-like objects without distortion or enlargement.

A further object is to provide indenting or embossing mechanism of this type with which the separation of the object acted upon after the completion of the operation is simplified.

A further object is to generally simplify the indenting and embossing tools of this type and permit more rapid operation of the device.

Various other objects and advantages will be apparent from the following description of one commercial embodiment of the invention and the novel features will be more particularly pointed out hereinafter in claims.

In the accompanying drawings:—

Fig. 1 is a sectional elevation of a part of the apparatus of this type constructed in accordance with this invention;

Fig. 2 is a partial side and sectional elevation of another part of the apparatus used in connection with the part shown in Fig. 1; and

Fig. 3 is a plan of the part shown in Fig. 2.

In the illustrated embodiment of the invention two plates *i* and *d* are mounted in a suitable manner, not shown, for relative movement relatively toward and from one another in a direction face to face. The plate *i* is provided with a depending peripheral cam flange *g*, the inner surface of which is beveled as at *g'* and serves as a cam surface for a purpose to appear presently. The plate is also provided upon the face having the flange *g* with a tongue *h* having a beveled or tapered portion *h'*, which also serves as a cam surface for a purpose to appear presently. The tongue *h* is preferably anchored to the plate *i* within a cavity or recess *k*.

The plate *d* is provided upon the face abutting the plate *i* with radial grooves *c*. The pressing tools comprise sector-like elements *a* and *b* which are arranged in pairs, the parts of each pair being disposed radial to one another and having tongues extending into the radial grooves *c* so that the elements of each pair will be guided by the grooves radially toward and from one another. Suitable springs *e* are interposed between the elements of each pair so as to yieldingly hold them slightly spaced apart and permit of the insertion between them of the object or ring to be acted upon. Where a ring is to be acted upon, the segment-like elements are arranged so as to form, when assembled, substantially a disc with an annular groove around the same in which the ring *f* to be acted upon, may be inserted edgewise as shown in Fig. 2. The outer edge surfaces of the outer tool elements *a* are provided with beveled surfaces *a'*, which coact with the cam surface *g'* when the two plates *d* and *i* are brought together. The inner ends of the tool elements *b* are beveled also as at *b'* to form cam surfaces which coact with the tapered end *h'* of the tongue *h* when the plates *d* and *i* are brought together. Thus when the plates *d* and *i* are brought together, the tongues *h* and flange *g* will act concomitantly upon the inner and outer elements or parts of each pair of tools and force both of them radially toward one another so as to compress between them the ring or other object *f* which may be interposed between them to be acted upon. In the embodiment illustrated all the sections *a* constituting the outer tools will be acted upon simultaneously by the cam surface *g'* and forced inwardly by such cam surface. The beveled inner ends of tools *b* together form a tapered aperture or cavity into which the tapered end *h'* of the tongue *h* enters

when the plate *i* approaches the plate *d*. The tapered end *h'* therefore acts upon all of the inner tool parts or elements *b* and forces them all radially outward at the same time that the outer tools are being forced inwardly by the depending flange *g*. During this operation the springs *c* will be compressed between the tool elements of each pair so that when the plate *i* separates from the plate *d*, the springs *c* will separate the tool elements of each pair and thus completely release the interposed ring or object *f* which is being acted upon. Since the tools move against the ring radially from both directions, the ring will not be distorted as would be the case if either the inner or outer tools remained stationary during the operation. At the same time by providing clearance for the ring *f*, the ring may be removed from the tools even with its embossed surfaces without difficulty and without distortion which is not possible in devices as heretofore constructed. Furthermore the ring or object acted upon is released automatically when the pressure plates *d* and *i* are separated and as a result the operations are more rapid and require less skill than has been heretofore required. The indenting or embossing operation may be performed while the object is either heated or cold as understood in the art.

In the operation of the device, the ring *f* to be treated is placed between the two elements of each pair or in the annular space between them as shown. The plate *i* is then brought against the plate *d* by a suitable mechanism, not shown, under a suitable pressure so that the cam surfaces *g'* and *h'* will force all of the tools radially to emboss or indent the ring *f*. When the plate *i* is separated from the plate *d*, the tools will be released and the springs *c* will separate them, thus releasing the ring which is lying free and may easily be lifted out.

While I have described in detail a particular embodiment of my invention which I have found to be satisfactory and desirable, it will be understood by those skilled in the art, that many changes in these details may be made without departure from the spirit of the invention and within the scope of the claims hereto appended.

What I claim is:—

1. In a mechanism for pressing ring-like and arcuate faces, a pressure member carrying a central tongue and an exterior cam ring, and opposing radially adjustable tools interposed between the ring and tongue and movable radially toward one another by the action of the tongue and cam ring, whereby an annular object to be acted upon when interposed between the opposing tools will be acted upon thereby without distortion.

2. In a mechanism for pressing ring-like and arcuate faces, a plurality of spaced tools disposed in pairs, the parts of each pair being radially movable toward and from one another, and means acting upon the tools to force all of them radially together concomitantly and against opposite faces of an interposed arcuate object to be acted upon, whereby said object will be acted upon by the tools without distortion.

3. In a mechanism for pressing ring-like and arcuate faces, a pair of opposing members relatively movable toward and from one another, a plurality of spaced tools carried by one of said members and disposed in pairs, the parts of each pair being both capable of radial movement toward and from one another to act upon both faces of an interposed object, and cam means carried by the other member and acting upon all of the tools to move all of them radially against an interposed object to be acted upon when the members are brought together.

4. In a mechanism for pressing ring-like and arcuate faces, a plurality of spaced tools disposed in pairs, the parts of each pair being radially movable toward and from one another, means acting upon the tools to force all of them radially together concomitantly and against opposite faces of an interposed arcuate object to be acted upon, whereby said object will be acted upon by the tools without distortion, and spring means acting upon the parts of each pair of tools for separating them radially when released by said forcing means.

5. In a mechanism for pressing ring-like and arcuate faces, a pair of opposing members relatively movable toward and from one another, a plurality of spaced tools carried by one of said members and disposed in pairs, the parts of each pair being both capable of radial movement toward and from one another to act upon both faces of an interposed object, cam means carried by the other member and acting upon all of the tools to move all of them radially against an interposed object to be acted upon when the members are brought together, and spring means acting upon the parts of each pair of tools for separating them radially when released by the said cam means.

6. In a mechanism for pressing ring-like and arcuate faces, a plurality of spaced tools disposed in pairs, the parts of each pair being radially movable toward and from one another, means acting upon the tools to force all of them radially together concomitantly and against opposite faces of an interposed arcuate object to be acted upon, whereby said object will be acted upon by the tools without distortion, and springs interposed between the inner and outer tools of each radial pair for separating them to release the interposed object

acted upon as soon as they are released by said forcing means.

7. In a mechanism for pressing ring-like and arcuate faces, a pair of opposing members relatively movable toward and from one another, a plurality of spaced tools carried by one of said members and disposed in pairs, the parts of each pair being both capable of radial movement toward and from one another to act upon both faces of an interposed object, cam means carried by the other member and acting upon all of the tools to move all of them radially against an interposed object to be acted upon when the members are brought together, and springs interposed between the inner and outer tools of each radial pair for separating them to release the interposed object acted upon as soon as they are released by the separation of the said members.

8. In a mechanism for pressing ring-like faces, a pressing-plate provided with central tongue and exterior ring, and tools carried by another plate and thereon radially adjustable by the action of the tongue and ring toward one another to act upon an arcuate interposed object, and springs located between the tools to separate them when said tools are released by said tongue and ring, thereby releasing the interposed object.

9. In a mechanism for pressing ring-like faces, a pressing-plate provided with central tongue and exterior ring, and tools carried by another plate and thereon radially adjustable by the action of the tongue and ring toward one another to act upon an arcuate interposed object, and springs located between the tools to separate them when said tools are released by said tongue and ring, thereby releasing the interposed object, said tools being guided in radial guides on the plate supporting them.

10. In a mechanism for pressing ring-like and arcuate faces, a plurality of spaced tools disposed in pairs, the parts of each pair being radially movable toward and from one another, and means acting upon the tools to force all of them radially together concomitantly and against opposite faces of an interposed arcuate object to be acted upon, whereby said object will be acted upon by the tools without distortion, said tool actuating means comprising a member carrying a circular cam surrounding the outer tools and forcing them radially inwardly and also carrying a cam tongue for forcing the inner tools radially outwardly concomitantly with the inward movement of the outer tools.

In testimony whereof I have affixed my signature in presence of two witnesses.

HEINRICH PÖPPELMANN.

Witnesses:

NAU HERDE,

LUDWIG HOFER.